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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,286	07/08/2002	Hubert Benzel	10191/2262	3055
26646	7590	06/30/2004	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			ALANKO, ANITA KAREN	
			ART UNIT	PAPER NUMBER
			1765	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/070,286	Applicant(s) BENZEL ET AL	
	Examiner Anita K Alanko	Art Unit 1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-48 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 16-22, 24-35, 38-48 is/are rejected.
- 7) ☒ Claim(s) 23,36 and 37 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/5/02</u> . | 6) <input type="checkbox"/> Other: ____ |

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16-20, 24-28, 43-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Seefeldt et al (US 5,834,333).

Seefeldt discloses a method and a semiconductor component made by the method comprising:

producing a first porous layer in the semiconductor component (col.5, lines 55-56); and

producing a cavity 22 in the semiconductor component from the first porous layer, the cavity configured to be provided with an external access opening (in order to be etched; col.5 lines 40-col.6, line 11).

As to claims 17-19, Seefeldt discloses to form a pressure sensor, which also has multilayer semiconductor elements (“integrated circuitry”) in order to operate the sensor (col.3, lines 31-47).

As to claim 20, Seefeldt discloses that the wafer includes silicon (col.3, line 49).

As to claims 24-27, Seefeldt discloses to form multiple porous layers 204, and 212 and 216 (col.5, lines 55-56), which are removed by access openings in one side (col.6, lines 3-4).

As to claim 28, Seefeldt discloses to use HF (col.9, line 45).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16-22, 24-28, 35, 39-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seefeldt et al (US 5,834,333).

The discussion of Seefeldt from above is repeated here.

As to claims 21-22, Seefeldt discloses to form multiple porous layers 204, and 212 and 216 (col.5, lines 55-56). Seefeldt does not disclose the degree of porosity. However, since they are at different levels in the substrate (Fig.8), it is expected that they have different porosities. It is expected that the degree of porosity effects the efficiency of their later removal by etching. It would have been obvious to one with ordinary skill in the art to vary the porosity to the degree cited because the porosity appears to reflect a result-effective variable which can be optimized. See MPEP 2144.05 IIB.

As to claim 35, Seefeldt discloses to apply an electrical field (col.8, lines 3-5).

As to claim 39, Seefeldt discloses to have a high-temperature step (col.9, lines 65+).

As to claims 40-42, Seefeldt discloses to form a beam of polysilicon, however it would have been obvious to form a silicon epitaxial layer since they are both formed from the same material, silicon.

Claims 16-22, 24-35, 38 and 40-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seefeldt et al (US 5,834,333) in view of Brendel (US 2003/0017712 A1).

The discussion of Seefeldt from above is repeated here.

As to claims 29-34 and 38, Seefeldt does not disclose to add an additive to the HF etchant. Brendel teaches that it is useful to add ethanol in the concentration cited to HF for etching of porous silicon (paragraph [0132]). It would have been obvious to add ethanol to the etchant in the method of Seefeldt because Brendel teaches that it is a useful additive for etchants.

Allowable Subject Matter

Claims 23 and 36-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest producing a cavity or hollow from the second porous layer by an annealing step, as in the context of claim 23.

The closest prior art, Seefeldt, discloses to form the cavity by etching, and there is no suggestion to use annealing, thereby forming the cavity as in the context of claim 23.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K Alanko whose telephone number is 571-272-1458. The examiner can normally be reached on Mon, Tues & Fri: 8:30 am-5 pm; Wed&Thurs: 10 am-2 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anita K. Alanko

Anita K Alanko
Primary Examiner
Art Unit 1765